





1600

ENTERED

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/882,694B

DATE: 01/02/2003 66

TIME: 08:42:29

Input Set : A:\Seqlist.txt

Output Set: N:\CRF4\01022003\I882694B.raw

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4 <110> APPLICANT: Duvick, Jon
5
        Maddox, Joyce
        Gilliam, Jacob
 6
7
        Folkerts, Otto
        Crasta, Oswald R.
10 <120> TITLE OF INVENTION: Compositions and Methods for Fumonisin
         Detoxification
13 <130> FILE REFERENCE: 35718/208255
15 <140> CURRENT APPLICATION NUMBER: 09/882,694B
16 <141> CURRENT FILING DATE: 2001-06-15
18 <150> PRIOR APPLICATION NUMBER: 09/351,224
19 <151> PRIOR FILING DATE: 1999-07-12
21 <160> NUMBER OF SEQ ID NOS: 33
23 <170> SOFTWARE: FastSEQ for Windows Version 4.0
25 <210> SEQ ID NO: 1
26 <211> LENGTH: 1691
27 <212> TYPE: DNA
28 <213> ORGANISM: Exophiala spinifera
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31 <221> NAME/KEY: misc_feature
32 <222> LOCATION: (0)...(0)
33 <223> OTHER INFORMATION: flavin monooxygenase with intron
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38 aaaatctteg agggageeee egattttgge ggegtetgge actggaaceg etaceetgge 180
39 gctcgtgttg attcggagac gcccttctac caactgaaca ttcccgaagt atggaaagac 240
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41 gacaagatcc ggggcttgag aaaagacgtc tacttcggag ctgaggtggt tgatgcgcgg 360
42 tatgccagag atctgggcac ctggactgtc aagacgtcgg ctggccatgt tgcgacggca 420
43 aagtatetea ttetegetae ggggttgete caeaggaage acaeteeege acteeeege 480
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45 gagggecaga gagtegeegt categgtgee ggggecacaa geatecagat tgtteaggag 600
46 ttggccaaga aggctgacca ggtaaccatg tttatgcgaa ggccgagcta ttgtctgccc 660
47 atgcqqcaac qaacqatqqa taqqaacqaa caqacaqcct qqaaqqccta ctaccccacq 720
48 ctgtttqaaq cgaqtcgaaa qtctcqgatt gqattcccgq tccaqgcacc gtcgqttggc 780
49 atctttgaag tcagccccga gcagcgggag gcctatttcg aagagttgtg ggagcgtggg 840
50 gcctttaatt ttcttgcttg ccagtaccga gaagtcatgg ttgacaaaaa ggccaaccga 900
51 ctggtctatg acttctgggc caaaaagact cgatctcgta tcgtcaatcc ggcaaagaga 960
52 gateteatgg etectetgga geogeogtae tggtteggta ecaagegete eccaetggag 1020
53 agcgactact acgaaatgct ggacaagccg agcgtcgaaa ttgtgaatct agaacaatcg 1080
54 cccattgtgg ctgttacaaa gacaggtgtg ctcttgagtg acggcagcaa gagggaatgc 1140
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     59 tttccaacgg cccaacgatc atagaaaccc aagtcgactt gatcgccgat acaattgcaa 1440
     60 agttggaggc cgagcacgcc acgtccgttg aggcgacgaa atcagcacaa gaggcatggt 1500
     61 cgattatgat tgccaagatg aacgagcaca ctctgttccc cttgacggat tcgtggtgga 1560
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     81 Met Ser Ala Thr Ser Asn Ser Arg Gly Asp Cys Ser Val Ala Cys Asp
                         5
     84 gcc atc atc gtt gga gcc ggc ctc agc ggc atc tct gct gtg tac aaa
                                                                           96
     85 Ala Ile Ile Val Gly Ala Gly Leu Ser Gly Ile Ser Ala Val Tyr Lys
                     20
                                         25
                                                                           144
     88 ttg cga aag ctc aga ctc aac gcc aaa atc ttc gag gga gcc ccc gat
     89 Leu Arg Lys Leu Arg Leu Asn Ala Lys Ile Phe Glu Gly Ala Pro Asp
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     92 ttt ggc ggc gtc tgg cac tgg aac cgc tac cct ggc gct cgt gtt gat
     93 Phe Gly Gly Val Trp His Trp Asn Arg Tyr Pro Gly Ala Arg Val Asp
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                                                     60
     96 tcq qaq acq ccc ttc tac caa ctq aac att ccc qaa qta tgg aaa gac
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     97 Ser Glu Thr Pro Phe Tyr Gln Leu Asn Ile Pro Glu Val Trp Lys Asp
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                                                 75
     100 tgg acc tgg tct tgc cgc tat cct gac cag aaa gag ttg ctg tca tat
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     101 Trp Thr Trp Ser Cys Arg Tyr Pro Asp Gln Lys Glu Leu Leu Ser Tyr
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     104 gtt cac cac tgt gac aag atc cgg ggc ttg aga aaa gac gtc tac ttc
     105 Val His His Cys Asp Lys Ile Arg Gly Leu Arg Lys Asp Val Tyr Phe
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                     100
     106
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     108 gga gct gag gtt gat gcg cgg tat gcc aga gat ctg ggc acc tgg
     109 Gly Ala Glu Val Val Asp Ala Arg Tyr Ala Arg Asp Leu Gly Thr Trp
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     112 act qtc aag acg tcg gct qgc cat gtt gcg acg gca aag tat ctc att
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     113 Thr Val Lys Thr Ser Ala Gly His Val Ala Thr Ala Lys Tyr Leu Ile
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                                 135
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     117 Leu Ala Thr Gly Leu Leu His Arg Lys His Thr Pro Ala Leu Pro Gly
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122					165					170					175		
124	gac	ttc	gac	gca	gag	ggc	cag	aga	gtc	gcc	gtc	atc	ggt	gcc	ggg	gcc	576
125	Asp	Phe	Asp	Ala	Glu	Gly	Gln	Arg		Ala	Val	Ile	Gly	Ala	Gly	Ala	
126				180					185					190			
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130			195					200					205				670
								agc									672
	Thr		Phe	Met	Arg	Arg		Ser	Tyr	Cys	ьeu		met	Arg	GIN	Arg	
134		210				~~~	215		~~~	+~~	~~~	220	+ > 0	+	200	200	720
	_		_			_	_	aca	-								120
138		Mec	Asp	ALG	ASII	230	GTII	Thr	Ald	πρ	235	мта	TAT	1 A T	FIG	240	
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								Ser									
142	БСС	1110	01.0		245	**** 9	270	~~_	9	250	01.7				255		
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146				260					265				,	270		_	
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149	Phe	Glu	Glu	Leu	Trp	Glu	Arg	Gly	Ala	Phe	Asn	Phe	Leu	Ala	Cys	Gln	
150			275					280					285				
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		Trp	Ala	ьуs	гàг		Arg	Ser	Arg	11e		Asn	Pro	Ala	гàг	320	
	305	a+ a	^+~	~~+	oot	310	~~~	000	000	+	315	++0	aat	200	224		1008
								ccg Pro									1000
162	тэр	пец	1100	пια	325	ьси	Q1.u	110	110	330	11.5	1110	O L y	1111	335	9	
	tida	сса	cta	gag		gac	tac	tac	даа		cta	αac	aaσ	cca		atc	1056
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166				340		*	-	-	345			•	-	350			
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169	Ğlu	Ile	Val	Asn	Leu	Glu	Gln	Ser	Pro	Ile	Val	Ala	Val	Thr	Lys	Thr	
170			355					360					365				
								agc									1152
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		Ala	Thr	Gly	Phe	-	Ser	Phe	Thr	GTA		Leu	Thr	Hls	Met		
	385	n.e				390	~+ ~	~~-	a+ =		395	~+~	+ ~~		~~+	400	1248
								gac Asp									1740
181	րեր	րչ	ASII	ьys	405	атХ	۷ат	мэр	ոեդ	119S	GIU	νат	ттЪ	בעניי	415	gry	
102					403					4 TO					417		



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189	Phe	Val	Ala	Thr	Ala	Gln	Ala	Pro	Thr	Val	Leu	Ser	Asn	Gly	Pro	Thr	
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194		450					455					460					
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201	Ата	пр	ser	116	485	Ile	MIG	гÃ2	met	490	GIU	птр	1111	neu	495	FIO	
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206	200	****	ı və b	500	111	LLP	1	O + J	505		220	110	01,	510	11-10		
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210	_		515				- 1	520				-	525			-	
212	caa	gag	aag	gtg	gcc	aat	tgg	gat	ggg	ttt	gat	gtg	ctt	cat	gct	ccc	1632
213	Gln	Glu	Lys	Val	Ala	Asn	Trp	Asp	Gly	Phe	Asp	Val	Leu	His	Ala	Pro	
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251	Thr	Ser	Ile	Gln	Ile	Val	Gln	Glu	Leu	Ala	Lys	Lys	Ala	Asp	Gln	Val
252			195					200					205			
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267	Asp	Leu	Met	Ala	Pro	Leu	Glu	Pro	Pro	Tyr	Trp	Phe	Gly	Thr	Lys	Arg
268					325					330					335	
269	Ser	Pro	Leu		Ser	Asp	Tyr	Tyr		Met	Leu	Asp	Lys		Ser	Val
270				340				_	345			_ 、		350	_	\
	Glu	Ile		Asn	Leu	GLu	GIn		Pro	lle	Val	Ala		Thr	Lys	Thr
272	01-	57. T	355	T	0	7	01	360	T	70 00 00	C1	Cvia	365	mh w	Tlo	17-1
274	Gly	370	Leu	теп	zet	Asp	375	ser	гуз	ALG	Giu	380	мър	1111	TIE	val
	Leu		Thr	Glv	Pho	Δen		Phe	Thr	Glv	Ser		Thr	His	Met	Glv
	385	A1.u	1111	OTY	1110	390	JCI	1110	1111	O.L.y	395	110 4	1112			400
	Leu	Lvs	Asn	Lvs	His		Val	Asp	Leu	Lys		Val	Trp	Lys	Asp	Gly
278		-1		4	405	_		•		410			-	-	415	_
279	Ile	Ser	Thr	Tyr	Met	Gly	Val	Phe	Ser	His	Gly	Phe	Pro	Asn	Ala	Phe
280				420					425					430		
281	Phe	Val	Ala	Thr	Ala	Gln	Ala		Thr	Val	Leu	Ser		Gly	Pro	Thr
282			435					440					445			
	Ile													Ala	Lys	Leu
														20.7 -	G1	G1
	Glu	Ala	GIU	His	Ala		Ser	vaı	GIU	Ата		гàг	Ser	Ата	GIII	480
	465 Ala	T ~ m	Cor	T 1 0	Ma+	470	717	Tuc	Mot	λen	475	uic	Thr	T.O.I	Dha	
288		ттБ	Set	716	485	776	VIG	ηλο	1766	490	Giu	1112	7 11 L	<u> </u>	495	110
	Leu	Thr	Asn	Ser		Trn	Thr	Glv	Glv		Ile	Pro	Glv	Lvs		Thr
290		~	P	500	-+12	12		1	505				1	510		
	Arg	Ala	Leu		Phe	Ile	Gly	Gly	-	Ala	Leu	Tyr	Glu		Ile	Cys
292			515				-	520				-	525			-

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/09/882,694B

DATE: 01/02/2003 TIME: 08:42:30

Input Set : A:\Seqlist.txt

Output Set: N:\CRF4\01022003\1882694B.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:10; Xaa Pos. 279 Seq#:11; Xaa Pos. 279 VERIFICATION SUMMARY DATE: 01/02/2003
PATENT APPLICATION: US/09/882,694B TIME: 08:42:30

Input Set : A:\Seqlist.txt

Output Set: N:\CRF4\01022003\1882694B.raw

L:79 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2 L:312 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:4 L:563 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:7 L:864 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:10 L:934 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:864 L:1228 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:272 L:1820 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:16 L:2018 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:18 L:2216 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:20 L:2467 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:22 L:2718 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:24 L:2969 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:26 L:3220 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:28 L:3471 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:28 L:3471 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:30 L:3722 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:30